

## REMARKS

The Examiner has rejected Claims 1, 10-11, 19, 21, 25, and 26 under 35 U.S.C. 103(a) as being unpatentable over Wong (U.S. Publication No. 2004/0264464 A1 using Provisional Application No. 60/482,759), in view of Tang et al. (U.S. Patent No. 6,553,028 B1). Applicant respectfully disagrees with such rejection, especially in view of the amendments made hereinabove to the independent claims. Specifically, applicant has amended the independent claims to at least substantially include the subject matter of former dependent Claim 10.

With respect to independent Claim 1, the Examiner has relied on the following excerpts from the Tang reference to make a prior art showing of applicant's claimed technique "wherein...a number of duplications of the packet for each of the plurality of output ports is controlled by descriptors arranged in a linked-list table indexed by a hashing function applied to said multicast address data."

"The replication engine uses the L3 information, including the MET pointer, MAC SA and LTL index to perform the necessary replication operations. Note that the LTL index 822 specifies the replication engine and not the router as a destination of the packet/frame. That is, the LTL index enables the replication engine to perform multicast packet replication while also implementing MFD (block-to-router); as noted, the index 822 further specifies port select signals associated with the incoming (ingress) VLAN, e.g., port 2 of the red VLAN. For frames destined to ports on VLANs other than the ingress VLAN, the replication engine rewrites those frames." (Col. 14, lines 4-15 - emphasis added)

"Each L3 multicast entry is further accessed by three components: the IPSA, IPDA and VLAN ID contained in the SCCM message 500. These three components are preferably hashed using a fixed hash algorithm to implement..." (Col. 12, lines 59-62 - emphasis added)

Applicant respectfully asserts that the excerpts from Tang merely teach that "[t]he replication engine uses the L3 information, including the MET pointer, MAC SA and LTL index to perform the necessary replication operations" and "the LTL index enables the replication engine to perform multicast packet replication while also implementing

MFD (block-to-router)” (emphasis added). Additionally, the excerpts teach that “[e]ach L3 multicast entry is further accessed by three components: the IPSA, IPDA and VLAN ID contained in the SCCM message 500” and “[t]hese three components are preferably hashed using a fixed hash algorithm” (emphasis added).

However, simply teaching that “the LTl index enables the replication engine to perform multicast packet replication while also implementing MFD (block-to-router)” (emphasis added), as in Tang, fails to even suggest that “a number of duplications of the packet for each of the plurality of output ports is controlled by descriptors arranged in a linked-list table indexed by a hashing function applied to said multicast address data” (emphasis added), as claimed by applicant. Furthermore, simply teaching that “the IPSA, IPDA and VLAN ID... are preferably hashed using a fixed hash algorithm” (emphasis added), as in Tang, fails to even suggest “a linked-list table indexed by a hashing function applied to said multicast address data” (emphasis added), as claimed by applicant.

With respect to independent Claims 11 and 26, the Examiner has relied on Col. 12, line 66 – Col. 13, line 2 from Tang and page STN-7 from Wong to make a prior art showing of applicant’s claimed “using the results of said hashing function as an index for a linked-list table” (see this or similar, but not necessarily identical language in the aforementioned independent claims).

Applicant respectfully asserts that, in Col. 12, line 66 – Col. 13, line 2, Tang merely teaches that “[a]fter programming the L3 entry with information obtained by the SCCM message, the MSC accesses an appropriate L2 {G,C} entry of the L2 forwarding table using the group MAC DA address and VLAN ID” (emphasis added). However, simply teaching that “the MSC accesses an appropriate L2 {G,C} entry of the L2 forwarding table using the group MAC DA address and VLAN ID” (emphasis added), as in Tang, fails to teach or suggest “using the results of said hashing function as an index for a linked-list table” (emphasis added), as claimed by applicant.

Additionally, applicant respectfully asserts that page STN-7 from Wong merely teaches that “Equal Cost Multi-Path (ECMP) routing is a feature which enables an IP packet to be L3 switched to one of multiple next hops” and generally illustrates an “L3 interface index” from an “L3 Table” to an “L3 Interface Table.” However, merely disclosing an “L3 interface index” and “a feature which enables an IP packet to be L3 switched to one of multiple next hops,” as in Wong, fails to teach or even suggest “using the results of said hashing function as an index for a linked-list table” (emphasis added), as claimed by applicant.

Further, with respect to independent Claim 11, the Examiner has relied on step 5 on page STN-13 from Wong to make a prior art showing of applicant’s claimed “linked-list table including a plurality of pointers.”

Applicant respectfully asserts that step 5 on page STN-13 from Wong merely teaches “[using] HEAD\_POINTER as an index to the LS\_TABLE.” However, “[using] HEAD\_POINTER as an index to the LS\_TABLE” (emphasis added), as in Wong, fails to even suggest “[a] linked-list table including a plurality of pointers” (emphasis added), as claimed by applicant.

Furthermore, step 6 on page STN-13 from Wong merely teaches “[getting] the LS\_VECTOR and NEXT\_POINTER from [the] LS\_TABLE.” However, “[getting] the LS\_VECTOR and NEXT\_POINTER from [the] LS\_TABLE,” as in Wong, fails to even suggest “[a] linked-list table including a plurality of pointers” (emphasis added), as claimed by applicant.

Similarly, with respect to independent Claim 26, the Examiner has relied on step 5 on page STN-13 from Wong to make a prior art showing of applicant’s claimed “retrieving a multicast descriptor from said linked-list table.”

Applicant respectfully asserts that step 5 on page STN-13 from Wong merely teaches “[using] HEAD\_POINTER as an index to the LS\_TABLE.” However, “[using]

HEAD\_POINTER as an index to the LS\_TABLE” (emphasis added), as in Wong, fails to even suggest “retrieving a multicast descriptor from said linked-list table” (emphasis added), as claimed by applicant.

Furthermore, step 6 on page STN-13 from Wong merely teaches “[getting] the LS\_VECTOR and NEXT\_POINTER from [the] LS\_TABLE.” However, “[getting] the LS\_VECTOR and NEXT\_POINTER from [the] LS\_TABLE,” as in Wong, fails to even suggest “retrieving a multicast descriptor from said linked-list table” (emphasis added), as claimed by applicant.

With respect to independent Claims 21 and 25, the Examiner has relied on Col. 12, line 66 – Col. 13, line 2 from Tang and page STN-7 from Wong to make a prior art showing of applicant’s claimed technique “wherein said system uses said hashing function as an index to a linked-list table” (see this or similar, but not necessarily identical language in the aforementioned independent claims).

Applicant respectfully asserts that, in Col. 12, line 66 – Col. 13, line 2, Tang merely teaches that “[a]fter programming the L3 entry with information obtained by the SCCM message, the MSC accesses an appropriate L2 {G,C} entry of the L2 forwarding table using the group MAC DA address and VLAN ID” (emphasis added). However, simply teaching that “the MSC accesses an appropriate L2 {G,C} entry of the L2 forwarding table using the group MAC DA address and VLAN ID” (emphasis added), as in Tang, fails to teach or suggest “[the] system uses said hashing function as an index to a linked-list table” (emphasis added), as claimed by applicant.

Additionally, applicant respectfully asserts that page STN-7 from Wong merely teaches that “Equal Cost Multi-Path (ECMP) routing is a feature which enables an IP packet to be L3 switched to one of multiple next hops” and generally illustrates an “L3 interface index” from an “L3 Table” to an “L3 Interface Table.” However, merely disclosing an “L3 interface index” and “a feature which enables an IP packet to be L3 switched to one of multiple next hops,” as in Wong, fails to teach or even suggest “[the]

system uses said hashing function as an index to a linked-list table" (emphasis added), as claimed by applicant.

Further, with respect to independent Claims 21 and 25, the Examiner has relied on step 5 on page STN-13 from Wong to make a prior art showing of applicant's claimed "linked-list table having entries that comprise at least either multicast descriptors or pointers to multicast descriptors" (see this or similar, but not necessarily identical language in the aforementioned independent claims).

Applicant respectfully asserts that step 5 on page STN-13 from Wong merely teaches "[using] HEAD\_POINTER as an index to the LS\_TABLE." However, "[using] HEAD\_POINTER as an index to the LS\_TABLE" (emphasis added), as in Wong, fails to even suggest "[a] linked-list table having entries that comprise at least either multicast descriptors or pointers to multicast descriptors" (emphasis added), as claimed by applicant.

Furthermore, step 6 on page STN-13 from Wong merely teaches "[getting] the LS\_VECTOR and NEXT\_POINTER from [the] LS\_TABLE." However, "[getting] the LS\_VECTOR and NEXT\_POINTER from [the] LS\_TABLE," as in Wong, fails to teach "[a] linked-list table having entries that comprise at least either multicast descriptors or pointers to multicast descriptors" (emphasis added), as claimed by applicant.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991).

Applicant respectfully asserts that at least the third element of the *prima facie* case of obviousness has not been met, since the excerpts from the prior art references, as relied upon by the Examiner, fail to teach or suggest all of the claim limitations, as noted above. Nevertheless, despite such paramount deficiencies and in the spirit of expediting the prosecution of the present application, applicant has incorporated the subject matter of former Claim 10 into the independent claims.

With respect to the subject matter of former Claim 10 (now at least substantially incorporated into the independent claims), the Examiner has relied on Col. 14, lines 37-43 from the Tang reference to make a prior art showing of applicant's claimed technique "wherein the encoding format is configured to be selected in response to control bits" (see this or similar, but not necessarily identical language in the independent claims).

"Replication is performed by selecting only those ports that receive asserted port-select signals. This replication process continues for each outgoing VLAN. Operationally, the replication engine 316 accesses each MET entry 700 sequentially (starting from the location referenced by the MET pointer 750) until it reaches an entry having an asserted control bit (within the HC field 712) that specifies termination of replication for the frame. The process described above is then repeated for the next frame/packet having the same IP multicast flow." (Col. 14, lines 36-45)

Applicant respectfully asserts that, in Col. 14, lines 36-45, Tang merely teaches that "the replication engine 316 accesses each MET entry 700 sequentially (starting from the location referenced by the MET pointer 750) until it reaches an entry having an asserted control bit (within the HC field 712) that specifies termination of replication for the frame" (emphasis added). However, simply teaching "an asserted control bit...that specifies termination of replication for the frame" (emphasis added), as in Tang, fails to even suggest "the encoding format is configured to be selected in response to control bits" (emphasis added), as claimed by applicant.

Applicant further notes that the prior art is also deficient with respect to the dependent claims. For example, with respect to Claims 4 and 15, the Examiner has relied

on step 5 on page STN-13 from Wong to make a prior art showing of applicant's claimed "wherein...the descriptors arranged in the linked-list table include at least one shared descriptor" (see this or similar, but not necessarily identical language in the aforementioned claims).

Applicant respectfully asserts that step 5 on page STN-13 from Wong merely teaches "[using] HEAD\_POINTER as an index to the LS\_TABLE." However, "[using] HEAD\_POINTER as an index to the LS\_TABLE" (emphasis added), as in Wong, fails to even suggest "the descriptors [are] arranged in the linked-list table [and] include at least one shared descriptor" (emphasis added), as claimed by applicant.

Furthermore, step 6 on page STN-13 from Wong merely teaches "[getting] the LS\_VECTOR and NEXT\_POINTER from [the] LS\_TABLE." However, "[getting] the LS\_VECTOR and NEXT\_POINTER from [the] LS\_TABLE," as in Wong, fails to teach "the descriptors [are] arranged in the linked-list table [and] include at least one shared descriptor" (emphasis added), as claimed by applicant.

Again, applicant respectfully asserts that at least the third element of the *prima facie* case of obviousness has not been met, since the prior art references, as relied upon by the Examiner, fail to teach or suggest all of the claim limitations, as noted above.

Thus, a notice of allowance or specific prior art showing of each of the foregoing claim elements, in combination with the remaining claimed features, is respectfully requested.

Still yet, applicant brings to the Examiner's attention the subject matter of new Claims 27-29 below, which are added for full consideration:

"wherein a first descriptor in the linked-list table includes a first link to a second descriptor in the linked-list table" (see Claim 27);

“wherein the second descriptor in the linked-list table includes a second link to a third descriptor in the linked-list table” (see Claim 28); and

“wherein each of the plurality of entries includes a pointer descriptor which includes a plurality of linked-list pointers corresponding to the plurality of output ports” (see Claim 29).

Again, a notice of allowance or a proper prior art showing of all of applicant's claim limitations, in combination with the remaining claim elements, is respectfully requested.

Thus, all of the independent claims are deemed allowable. Moreover, the remaining dependent claims are further deemed allowable, in view of their dependence on such independent claims.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 505-5100. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-1351 (Order No. RMI1P040).

Respectfully submitted,  
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